CALFED Bay-Delta Program Agricultural Water Quality Technical Team
Meeting Summary
July 31, 1996

The first meeting of the CALFED Bay-Delta Program Agricultural Water Quality Technical Team was held on Wednesday, July 31, 1996 at the Resources Building Room 1142 from 1 to about 4:30 PM. ***Reference materials included the following:***

- The meeting agenda
- Team meeting dates and members list
- The team's statement of purpose
- The problem statement and water quality team objective
- A flow diagram of the process to address the agricultural cost or benefit of different water qualities in the Delta,
- Concerns of agricultural water users affected by pollution (Irrigated Agriculture TAC, Report to the CVWQCB, Dec. 1995),
- A table of effects of present Delta conditions on water quality,
- A draft (blank) table for team input (parameters of concern and their effects on agricultural water quality,
- A draft (blank) table of proposed CALFED water quality actions and affected parameters that impact agricultural water quality).

The meeting began with introductions of team members.

CALFED members of the Technical Team present were:
Steve Yaeger/CALFED
Rick Woodard/DWR
Ron Ott/CALFED-CT
John Dickey/CH2M HILL
Carol Howe/Montgomery Watson
Russ Brown/Jones & Stokes
Greg Young/CH2M HILL

Invited participants of the Technical Team present were:
Lance Johnson/Westlands Water District
Bill Johnston/Modesto Irrigation District
Nigel Quinn/USBR
Terry Prichard/UC Davis
Bob Herkert/California Rice Industry Association
Jim Beck/Kern County Water Agency

The status of CALFED work was given, including the following:

Four conceptual alternatives have been developed, and will be described in the report on Phase 1 activities, due out at the end of the month. They can be briefly characterized as follows:

1. No action
2. Maximize the efficiency of existing Delta facilities
3. Improve through-Delta conveyance through modifications of channels and levees. Widen some channels and flood some islands to reduce water velocities and improve fisheries.
4. Implement a dual conveyance system that utilizes existing facilities, and also provides an isolated canal on the margin of the Delta.

Performance goals will be developed by informal technical teams such as this one. The intention is that they should provide boundary conditions for the alternatives. For example, alternatives should not be framed in a manner that critically deteriorates water quality delivered to agriculture. The performance goals will be applied across alternatives in a programmatic manner, and will help guide long-term funding and planning.

Other informal technical teams with input to alternatives development include:

1. Ecological and public health water quality teams
2. Water use efficiency team
3. Levees and channels team

Official workgroups meeting concurrently include the following:

1. Assurances
2. Conveyance and storage
3. Ecosystem restoration

After initial, separate meetings of the water quality teams, they will meet jointly and integrate their findings into a single water quality program, then combined with the work of other technical teams and official workgroups to refine CALFED alternatives.

The remainder of the meeting consisted of discussion, to which all team members contributed. The following is a summary of their discussion and some conclusions.

How will CALFED deal with valley-wide salinity issues such as salinity of the San Joaquin River and land retirement? **CALFED will focus on salinity in the Delta and in river inflow, not with the overall valley issues.**

The make-up of the team is intended to be representative. If key people are missing, they can be added. The size of the team is, however, currently about right.

What are the team's **deliverables**? They are enumerated in the statement of purpose bullets. In summary:

1. The water quality criteria described above need to be developed. The criteria are expected to vary with time of year and location, and to be expressed as ranges of acceptable values. Again, they will be used to characterize acceptable conditions during development of CALFED alternatives, not as standards for enforcement. Also, they can be complex, varying by location and time of year, and having a gradual effect on agricultural production over a range of water quality levels.
2. Actions that affect water quality will eventually become elements of alternatives to achieve program goals. The influence of these actions on water quality as it affects agriculture needs to be evaluated, as does the effectiveness of these actions to maintain or improve water quality. Benefits and costs of actions affecting water quality should be considered and described.

The scope of the team's considerations should encompass forseeable conditions in California, so that the work products are robust. For example, initiatives like the Central California Wastewater Recycling Program could change salt balances considerably, and would influence many key inputs to and outputs from the Delta. Contingencies for implementation of such initiatives should be considered.

Water quality requirements depend on the crop being grown, but it can equally be said that farmers will grow crops requiring higher quality water (since they are often of higher value) when such water is available. Therefore, farmers want the best possible water quality. In a year with full water deliveries, this is much less of a problem than in dry years when deliveries are curtailed. In dry years, curtailed surface water is replaced by groundwater, which can be of low quality (high salinity). Surface water is then blended with groundwater to achieve acceptable salinity levels. The lower the salinity of the surface water, the less is needed for blending. Likewise, when surface water is plentiful, little blending occurs, and more water is irrigated "as is". Furthermore, as more saline water is used for irrigation, a larger quantity of leaching water is required and drainage water quality declines. Finally, opportunities for tailwater and drainage recycling are reduced. Therefore, water quantity and quality are inextricably linked for agriculture. Another example of this fact is in the Sacramento Valley, where increasing measures for water conservation, such as reduced through-flow and tailwater recycling in rice fields, has led to increases in salinity and reduced water quality in fields and agricultural water delivery systems. Therefore, the water quality requirement at the last, downstream headgate may be the key to establishing water quality criteria at the initial diversion. **These and other facts of agricultural water use should be taken into account as actions are prioritized for inclusion among alternatives.**

Some water quality programs in place, such as efforts to reduce rice herbicides in the Sacramento Valley river systems, are not on CALFED's list. **They need to be included so that ongoing efforts are fairly recognized and so that those implementing them are not inadvertently harmed by CALFED.**

Water quality requirements can be based in part on the Maas and Hoffman data for crop response

to salinity. These data predict yield response of a large number of crops to increasing levels of salinity. They can be used to relate costs and benefits to water quality levels in agriculture, but these costs and benefits will not compare reasonably with the very expensive water markets in California's urban areas. These functions should be developed for major crops in the Central Valley, and referenced to current water supply qualities. **CALFED staff will prepare this information as a starting point for water quality parameters for the team's review at the next meeting.**

It should be noted that salinity delivered to the Delta is in large measure recycled in exports, as much of it flows toward pumps. However, some of the CALFED measures could affect water circulation in the south Delta, and could change the rate or extent of this recycling.

Comments on specific water quality parameters and actions to influence water quality were incorporated into the blank tables by the group. According to the team, parameters of importance to agriculture include:

- salinity
- sodium
- chloride
- boron
- alkalinity
- temperature
- suspended solids
- nutrient levels.

A list of prioritized actions will be completed for the September 6 meeting. These tables will be updated by CALFED staff for the next meeting.

Water quality requirements for agriculture is simple in the sense that quality for crops being grown needs to be achieved at every headgate, and these levels of water quality can be established from available data. Also, water from the federal and state water projects is of generally good quality for agriculture. Complexity arises from the need to consider the following:

- The full extent of delivery system
- Variations in cropping patterns
- Variations in water supply levels
- Recycling of tailwater and subsurface drainage water
- Environmental limitations on drainage water quality
- Water quality influences sustainability as well as current economic product of agriculture
- Future changes in water management (50-year planning horizon)

Potential **locations for water quality criteria** identification were identified as the following:

- Vernalis -- no drainage included
- Banks
- DMC headworks at Tracy
- San Luis outlet

- Dos Amigos, or Check 13 for water delivered south of DM service area
- Mendota Pool for the DM service area
- Edmonston for users south of the Tehachapis
- Victoria River for south Delta circulation problems
- Jersey Point, between central and western Delta
- Colusa Basin Drain at Knights Landing
- San Luis Drain terminus

These monitoring points will be put on a map for selection of a suitable subset at the next meeting.

Delta water modeling will be with DSM2. Locations for criteria should be chosen on the basis of a long sampling history as well as their geographic value as indicators of water quality in the water system.

It was noted that morning meetings are preferred. The next meeting is the morning of August 22, 1996.